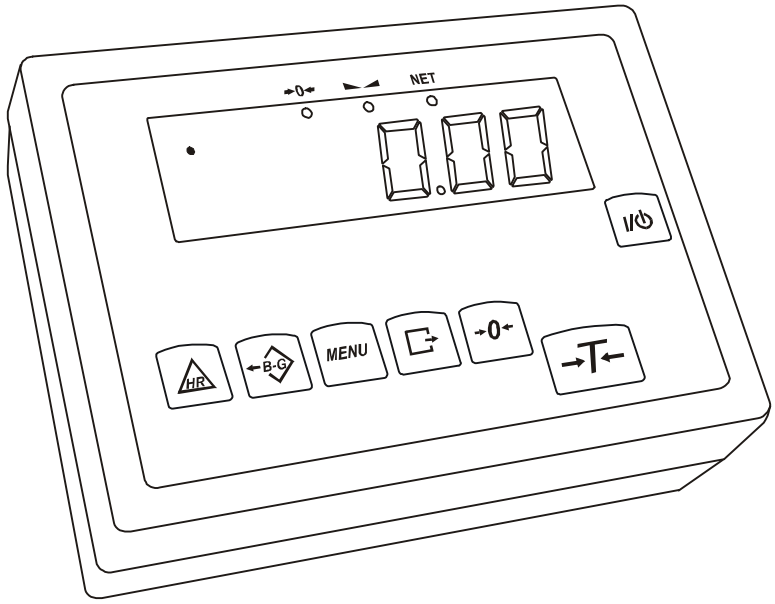

USER MANUAL

B SERIES

File: R-B-043-04-09 B42_0 GB

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1. General description

B series platform scales are destined for general use.

All scales are metrologically tested - calibration or legal verification on demand.
B series scales are made in two main versions: with LED display (basic) and with LCD display (option).
Standard indicator may be changed by indicator with additional keys – see appendix B.
Scales have following verification features:
- a seal protecting scale casing against opening,
- notified body stamps and green metrological marking placed on the balance name plate.

Legal verification is valid for 3 years unless the seal is broken.

NACE classification: : 29.24.23.

Certificates:

EC Type Approval Certificate No. PL 04 022

Health Quality Certificate No. HŻ/06458/01

AXIS management System Certificate DIN EN ISO 9001:2000 No. 78 100 6386

2. Completeness

Standard set consist of:
1. Scale
2. User Manual
3. Guarantee card
4. Feeder ZN12V/500mA (option)
5. Charger PA6V (option)

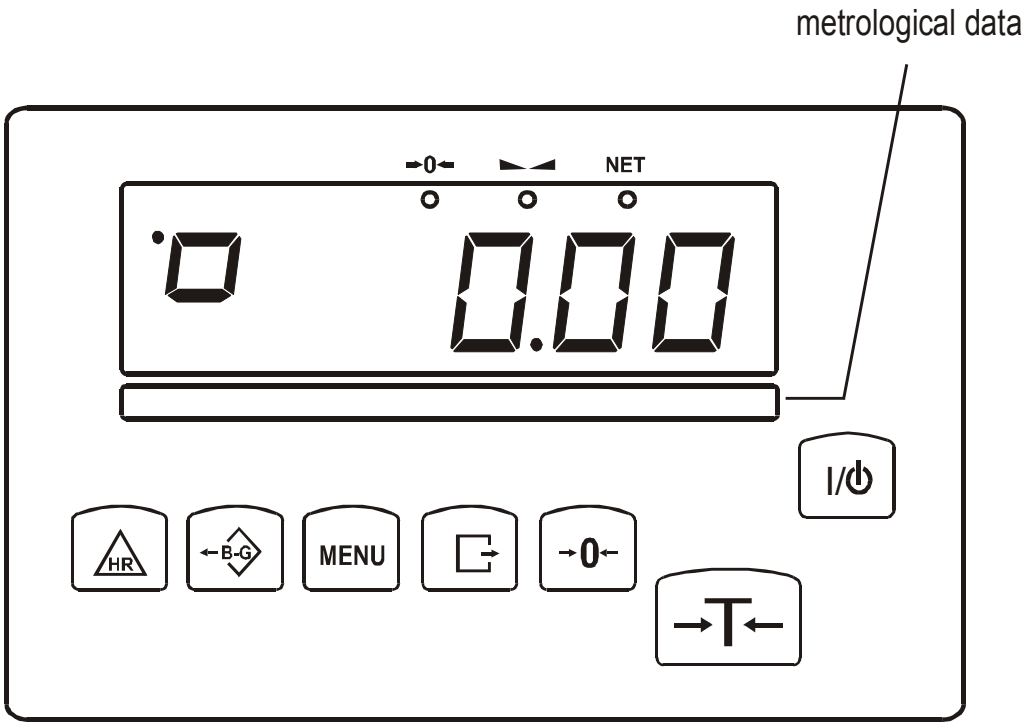
3. Technical data

Scale type	B15W	B30	B60	B120	B150	B200	B300
Maximum loading	15kg	30kg	60kg	120kg	150kg	200kg	300kg
Minimum loading	100g	200g	400g	1kg	1kg	1kg	2kg
Reading unit (d)	5g *1g	10g *5g *1g	20g *10g *5g *2g	50g *10g	50g *10g	50g *10g	100g *10g
Verification unit (e)	5g	10g	20g	50g	50g	50g	100g
Accuracy class	III						
Working temperature	-10 ÷ +40°C						
Tare range	-15kg	-30kg	-60kg	-120kg	-150kg	-200kg	-300kg
Weighing time	<4s						
Pan dimensions	380x380mm	400x500mm		400x400mm	600x500mm		
Scale base dimensions	400x540x100	400x650x125mm		400x550x130	600x650x150mm		
Scale height	585mm	740mm					
Power supply	230V, 50Hz, 8VA						
Internal feeding (option)	accumulator 6V/12Ah						
Accumulator working time	ok. 50 godz.						
Scale weight	13kg	23kg	23kg	21kg	35kg	35kg	35kg
EC Verification	✓	✓	✓	✓	✓	✓	✓

Scale type	B33	B63	B151	B152	B301
Maximum loading	30kg	60kg	150kg	150kg	300kg
Minimum loading	200g	400g	1kg	1kg	2kg
Reading unit (d)	10g *5g *1g	20g *10g *5g *2g	50g *10g	50g *10g	100g *10g
Verification unit (e)	10g	20g	50g	50g	100g
Accuracy class	III				
Working temperature	-10 ÷ +40°C				
Tare range	-30kg	-60kg	-150kg	-150kg	-300kg
Weighing time	<4s				
Pan dimensions	600x500mm		800x800mm	400x400mm	800x800mm
Scale base dimensions	600x650x150mm		800x950 x160mm	400x550 x130mm	800x950 x160mm
Scale height	35kg		50kg	21kg	60kg
Power supply	740mm				
Internal feeding (option)	230V, 50Hz, 8VA				
Accumulator working time	accumulator 6V/12Ah				
Scale weight	ok. 50 godz. (opcja)				
EC Verification	✓	✓	✓	✓	✓

** increased readability for non-EC verification applications*

4. Keys and indicators

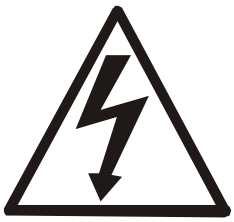


key	I/⏻	- switch-on / switch-off (standby),
key	*→T←*	- tare (subtract package weight from weighed mass),
key	*→0←*	- zeroing (when the platform is empty),
key	⊏→	- result printout,
key	*MENU*	- special function menu,
key	*B/G*	- gross,
key	*HR*	- high resolution,
indicator	**→0←**	- zero indicator,
indicator	⌣	- result stabilization indicator,
indicator	*NET*	- net weight indicator (indication with subtracted tare)
indicator	▪	- gross mass (after use of B/G key),
indicator	⬡	- indicator of pieces counting (indications in pieces)

LCD option:

indicator	*MODE*	- special function setting,
bar indicator		- total load indicator (graduated 0-100%)
indicator	*OFF*	- standby,
indicator	*B/G*	- gross mass (key B/G),
indicator	*pcs*	- pieces counting
Max, Min, d, e, III		- metrological parameters and accuracy class.

5. Security rules



To avoid electrical shock or damage of the scale or connected peripheral devices, it is necessary to follow the security rules below.

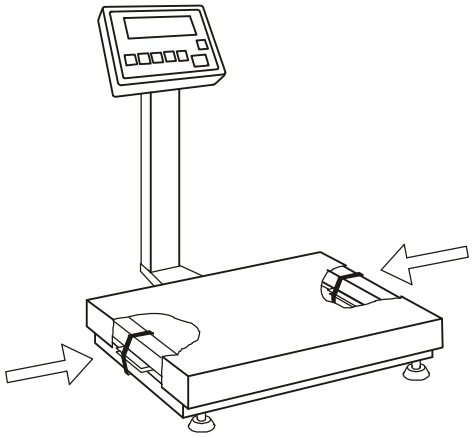
- All repairs and necessary regulations can be made by authorised personnel only.
- To avoid fire risk use a feeder of an appropriate type (supplied with the scale). Pay attention that supply voltage is compatible with specified technical data.
- Do not use the scale when its cover is opened.
- Do not use the scale in explosive conditions.
- Do not use the scale in high humidity.
- If the scale seems not to operate properly, unplug it from the mains and do not use until checked by authorised service.

6. Environment protection

According to legal regulations it if forbidden to dispose wasted electronic equipment in waste containers.

- Please return wasted scale to the point of purchase or other company specialised in recycling of wasted electronic components.

7. Preparation



1. Take the scale out of the package removing protective foils.

2. Take a pan off and remove protective elements from below the pan.

3. Place the scale on a stable ground not affected by mechanical vibrations and airflows.

Correct

Wrong

4. Level the scale with the rotating rear legs so that the air bubble in the water-level at the back of the scale is in the middle. Lock the legs with the nut.

5. Put on the pan.

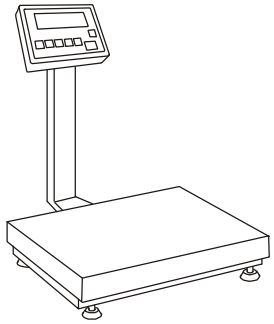
6. Remove everything from a pan and plug a scale to the mains with a ground contact. After self-tests and result stabilisation, the scale displays zero indication.

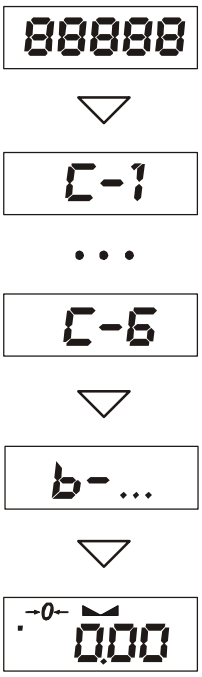
To feed a scale use only socket with a ground connector.

7. In scales with external feeder connect feeder plug to a connector on a display post. Plug a feeder to the mains (~230V, ground connector is not necessary).

8. Start-up

Leave the pan empty, plug a scale to the mains with a ground contact The scale proceeds with following start-up actions:





Display test.

Basic electronic components tests: *C1, C-2, ... C-6*.

Program version.

The scale is now ready to work.

9. General rules

1. Before each measurement make sure that zero indicator is displayed. If zero indicator does not displayed or "----" communicate appears, press →0← key and wait until zero indication and zero indicator appears.
2. The scale is equipped with a tare equal to its range. To tare the scale press →T← key (left or right). Storing a tare value does not extend measuring range, but only subtracts it from a load placed on a pan. To make weight control easier and to avoid range overdrawing, the scale is equipped with a load indicator (graduated in percentages).
3. Weighing result should be read when the indicator "◣ ◢" lights, which signalises stabilisation of a result.
4. When the scale is not used but it is necessary to be ready to work immediately, it can be switched off by pressing I/⏻ key. The scale reading system is then switched off to "standby" mode (signalled by the indicator "OFF" in version with the LCD display). To switch the scale on press I/⏻ key. The scale is immediately ready to operate maximum accuracy (after self tests).
5. Weighed sample should be placed in the centre of the pan.

Place the scale on a platform to avoid dropping weighed objects on the pan.

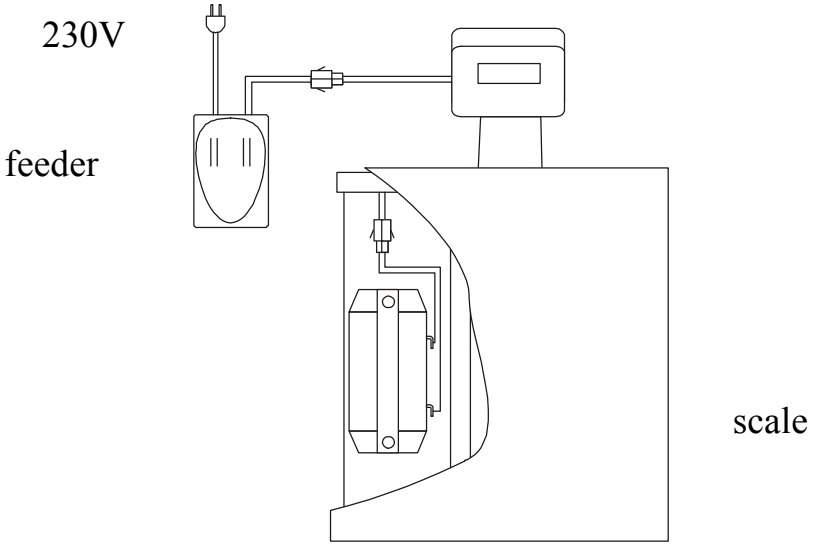
Do not overload the scale more then 20% of maximum load (Max).

6. Protect the scale against dust, aggressive dusts and liquids. To clean the scale wash it with water with soap and dry it afterwards.
7. A scale equipped with lead-acid accumulator automatically controls accumulator state, signalises its discharge on LCD display and after around 1h a scale switches itself off to avoid discharging the accumulator below threshold voltage.

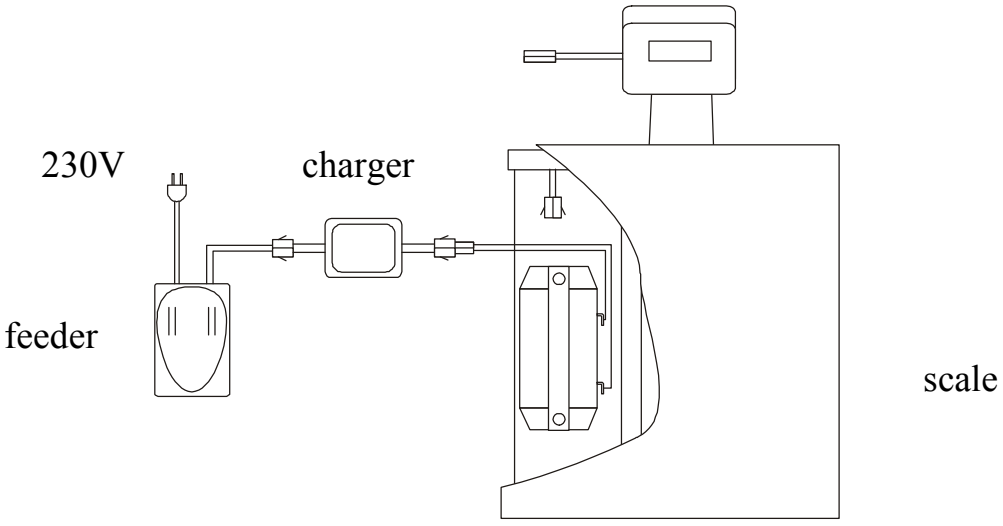
Do not discharge an accumulator because it can be damaged.

After discharge signalising appears an accumulator should be charged as quickly as possible by connecting external feeder. Charging is more effective when scale is turned off with I/⏻ key, then charging time is about 10 hours.
It is also possible to connect accumulator directly to PA6V charger leaving accumulator in a scale or take it out if needed. In order to take accumulator out take off a pan, disconnect accumulator wire and unscrew mounting screws.

Charging an accumulator through scale feeder:



Charging an accumulator directly through charger:



10. Balance checking

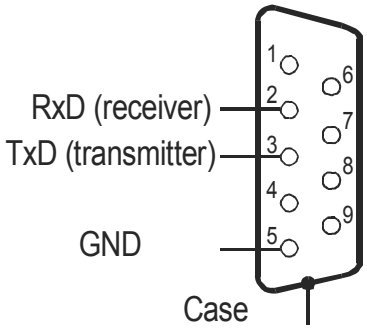
It is advised to check scale indication accuracy before and after series of measurement using any load with known weight.
To check the scale with legal verification use a calibration weight with valid calibration certificate. In case permissible error is exceeded it is advised to contact the nearest service to calibrate the scale.

11. Scale adjustment

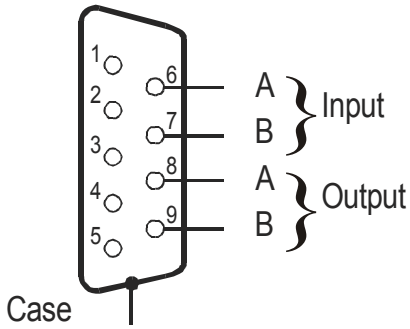
To adjust a balance it is necessary to break protective marks, therefore to calibrate the scale please contact the nearest service.

12. Connecting a computer or a printer (optional)

RS-232C



RS485 *(option)*



The scale is equipped with RS232C or RS485 (optional), which can be used to connect external devices such as a computer or a printer.

When cooperating with a printer data is send automatically after result stabilisation, but next transmission is possible after removing previously weighted sample.

The scale sends following information: successive number of weighing and weighing result (see: printer cooperation mode setting).

The scale may be equipped with the second interface (optional) used for example for continuous weighing result transmission to an additional, external display.

When cooperating with the scale, a computer should be equipped with a program which enables processing data from the scale – available in AXIS with extra charge.

Computer cooperation protocol:

A scale sends data with following settings:
Communication parameters: 8 bits, 1 stop bit, no parity, baud rate 4800bps.

Available orders and scale responses:

- initialising signal (data send order):
  Computer→Scale: S I CR LF (53h 49h 0Dh 0Ah),
  Scale→Computer: scale response according to description below (16 bytes),

  Description of response bytes:

Byte	1	-	sign or space
Byte	2	-	space
Byte	3÷4	-	digit or space
Byte	5÷9	-	digit, decimal point or space
Byte	10	-	digit
Byte	11	-	space
Byte	12	-	k, l, c, p or space
Byte	13	-	g, b, t, c or %
Byte	14	-	space
Byte	15	-	CR
Byte	16	-	LF

- scale tarring (calling *→T←* key press):
  Computer→Scale: S T CR LF (53h 54h 0Dh 0Ah),
  Scale→Computer: without response,

- scale turning on / off (calling I/⏻ key press):
  Computer→ Scale: S S CR LF (53h 53h 0Dh 0Ah),
  Scale →Computer: without response,

- scale zeroing (calling *→0←* key press):
  Computer→ Scale: S Z CR LF (53h 5Ah 0Dh 0Ah),
  Scale →Computer: without response,

- entering to special function menu (calling *MENU* key press):
  Computer→ Scale: S F CR LF (53h 46h 0Dh 0Ah),
  Scale →Computer: without response,

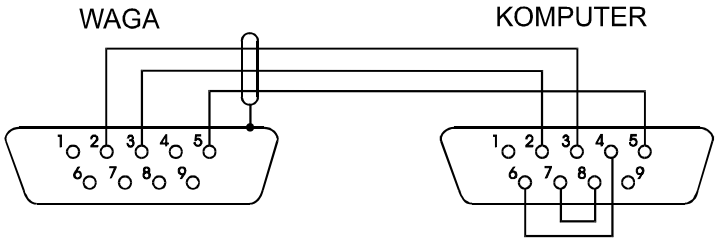
- setting low threshold value:
  Computer→ Scale: S L *D1...DN* CR LF (53h 4Ch *D1...DN* 0Dh 0Ah)
  D1...DN – threshold value, maximum 8 characters („-” – negative value, digits, dot – decimal separator), number of digits after dot should be the same as on

scale display,
Scale →Computer: without response,
Example:
· in order to set low threshold 1000g in scale B1.5 (d=0.5g) the following order should be sent:
S L 1 0 0 0 . 0 CR LF (53h 4Ch 31h 30h 30h 30h 2Eh 30h 0Dh 0Ah),
· in order to set low threshold 100kg in scale B150 (d=50g) the following order should be sent:
S L 1 0 0 . 0 0 CR LF (53h 4Ch 31h 30h 30h 2Eh 30h 30h 0Dh 0Ah),

- setting high threshold value:
Computer→ Scale: S H *D1...DN* CR LF (53h 48h *D1...DN* 0Dh 0Ah),
D1...DN – threshold value (see)
Scale →Computer: without response.

Note:
Network number different than zero (F..-rS */ nr* function) changes scale working mode: communication with a computer is possible after logging the scale in with 02h scale_number command. To log the scale out use 03h command.

Connecting cable WK-1 *(scale – computer / 9-pin interface):*



13. Special functions description

All scales, beside basic functions like weighing and tare, are equipped with the set of additional functions.
Basic set of user special functions consists of:
- autozero (*AUt*),
- pieces counting (*PCS*),
- constant tare (*tAr*),
- serial port working mode setting (*LPt*),
- serial port parameters setting (*rS*),
- menu customisation (*ACt*).

Other special functions can be enabled as an option on customer request (all functions are described in additional brochure when ordered).

Press *MENU* key to enter the function menu. Functions are displayed successively with consecutive numbers: *F1-PCS, F2-AUt*, etc.

To customise the function menu with most frequently used functions use Menu Customisation function (*ACt*).

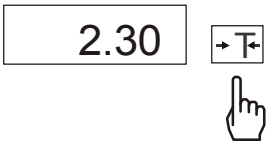
When switching between special functions *MODE* indicator is displayed.

To make clear how to manage with each function, in further part of instruction descriptions are replaced with pictures. Every time the picture of a hand appears, press the indicated key.

Legend:

- put a load on the pan

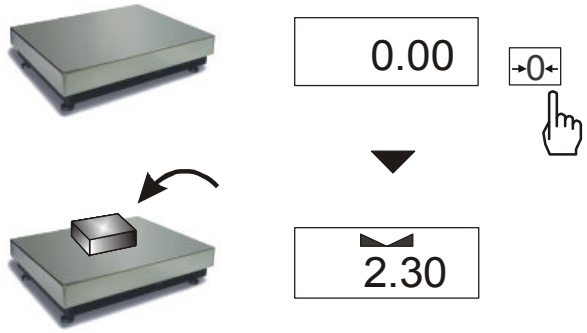
- remove the load from the pan



- press the key when indication is displayed
- forced change

- automatic change

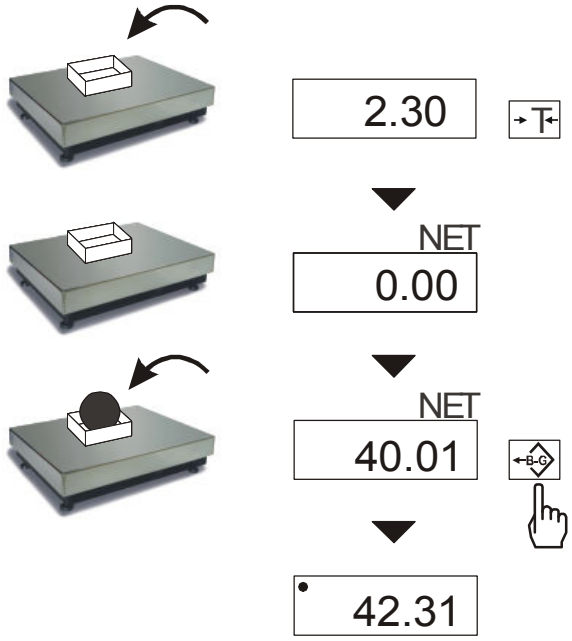
14. Normal weighing



→0← key, which zeros the scale, operates only when the pan is empty.

Weighing result should be read when the indicator "▬" lights.

15. Weighing with tare

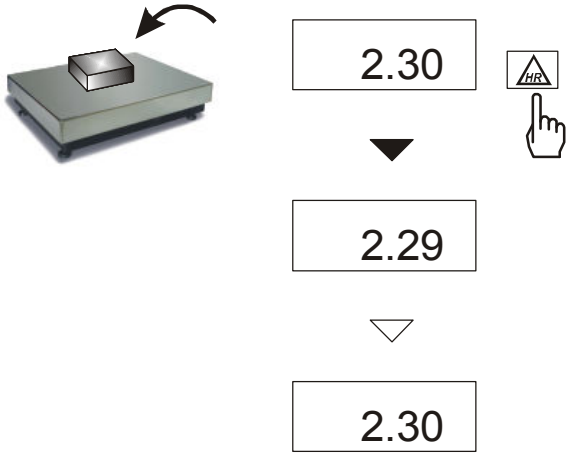


The scale is equipped with tare equal to its range.

To display gross weight press *B/G* key.

Note:
Press *B/G* key to return to net weight indication..

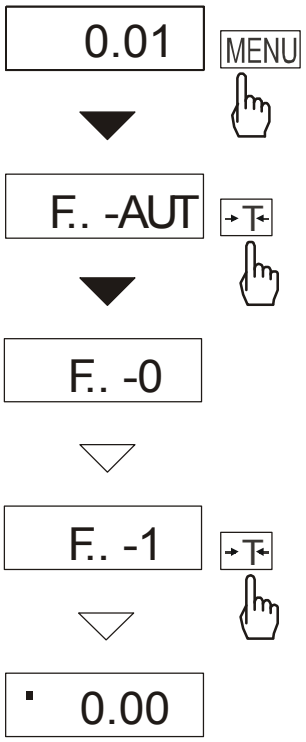
16. Increased readability



Press *HR* key to display the weighing result (for 5s.) with the highest readability possible. This function is especially helpful in scales with legal verification with d=e.

The weighing result with increased readability can be used for informational purposes only and cannot be printed or sent to a computer with ⮕ key.

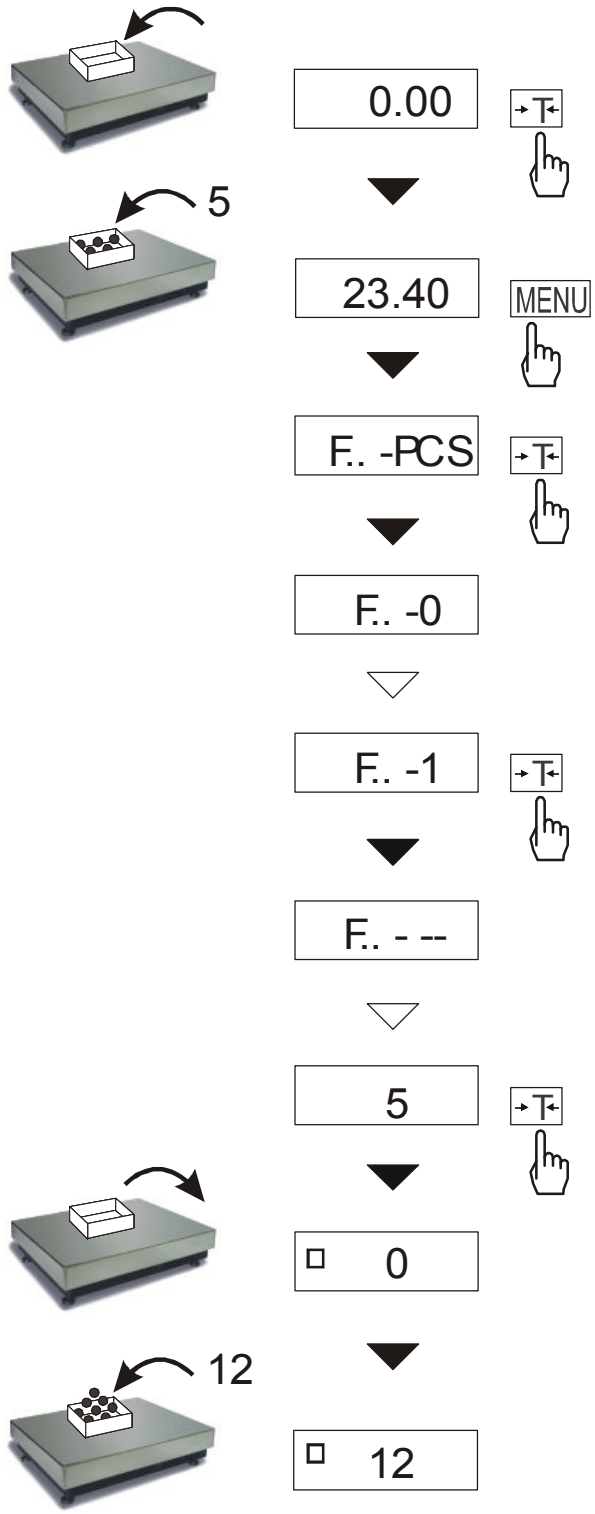
17. Autozero (F..-AUt)



When *F..-Aut* function is activated, the scale automatically ensures stable zero indication if the pan is empty or if zero indication was acquired by pressing →*T*← key.
To leave the function press *MENU* key, then with →*T*← key chose *F..-AUt* and *F..-0*.

Note: *Autozeroing function is activated automatically for 10 min. after switching-on.*

18. Pieces counting (F..-PCS)



This function enables to count identical pieces, e.g. turnbuckles or buttons.
A measurement is performed in two phases:
- first phase - single piece weight calculation on the basis of defined pieces amount (*5, 10, 20, 50, 100, 200* or *500* pieces),
- second phase – pieces counting.

It is advised that single piece weight is not less than one reading unit and sample weight used in first phase is bigger than 100 reading units.

To leave function press *MENU* key and then with *→T←* key chose *F..-PCS* and *F..-0*.

Notes:

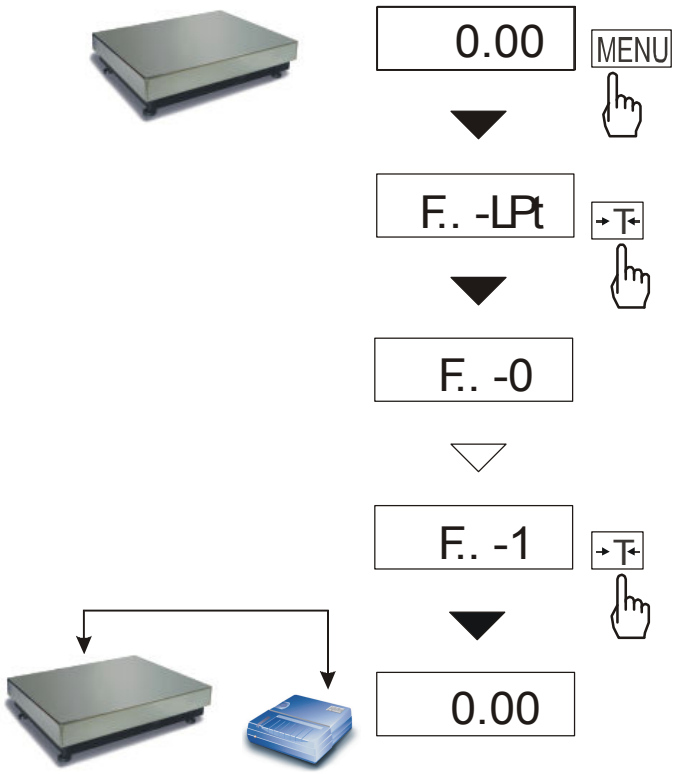
1. *Err-3 communicate signalises that a sample was not put on the pan. The same communicate appears if single piece weight is less than one reading unit (it is possible to count pieces but measuring error is bigger).*

2. *To chose previously used pieces amount select ".." in first phase (in case no value was chosen, error communicate appears).*

3. *During pieces counting →T← key function does not change.*

4. *In scales equipped with LCD display, weighing unit is visible and "□" sign is replaced with "pcs".*

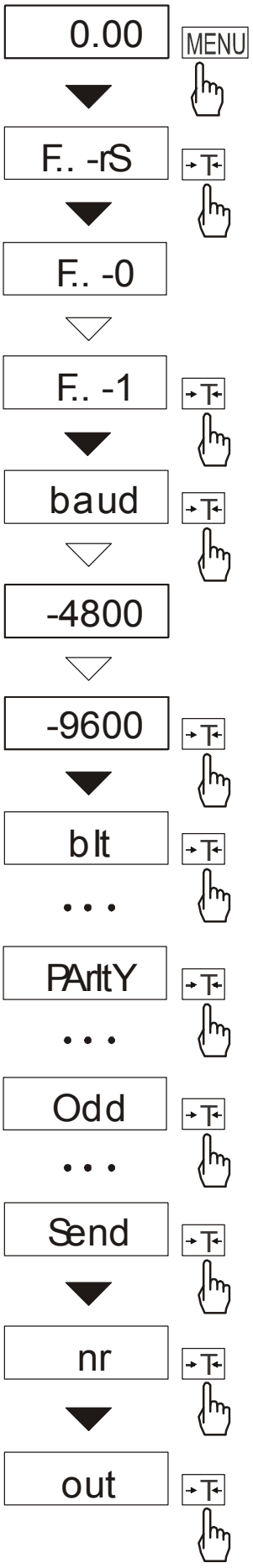
19. Printer cooperation settings (F..-LPt)



Activate the function for automatic serial port working mode (cooperation with a printer).
After activation the scale prints a header. Weighing result with a successive measurement number is printed automatically after result stabilisation (without using ⮕ key).

To select computer cooperation mode (⮕ key activated and weighing results without successive numbers) press *MENU* key, then with →*T*← key chose *F..-LPt* and *F..-0*.

20. Serial port parameters setting (F..-rS)



The function enables to set the following transmission parameters (standard parameters underlined):

- transmission speed (*bAud: 1200, 4800, 9600*),
- the number of bits in a byte (*bit: 7, 8*),
- parity control (*PArItY: 0, 1; Odd: 0, 1*),
- network number when working in multistand computer system (when working as a single scale the value should be "0")
- continuous transmission – without using ⇨ key, approx. 10 results per second (*SEnd: 0, 1*).

Default parameters underlined.

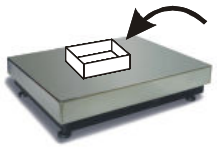
To set desired transmission parameters activate *F.._rS* function, choose appropriate parameter and press →*T*← key to accept needed parameter value. The example at the left presents how to set transmission speed value to 9600bps.

To leave the function choose *out* option.

21. Constant tare (F..-tAr)

This function enables to measure gross weight of a sample placed in a container of a known weigh value (stored in the memory) and to display calculated net weight of the sample. Tare value is recalled from the memory with *→0←* key when the pan is empty. Tare value may be entered using the keypad or by sampling container weight from the pan.

Operation sequence:



1.70 — MENU

F.. -tAr — →T←

F.. -3 — →T←

\- — →0← … →0←

1 — ⊏→

1. — →T←

1.0 — →0← … →0←

1.7 — MENU

NET

0.00

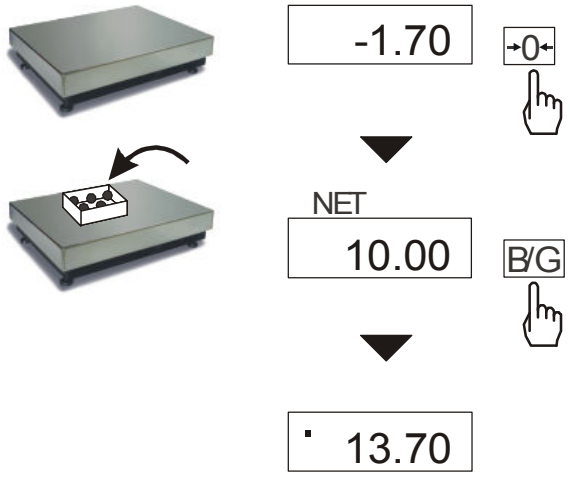
The following options are possible:
- *F-0* – leave the function,
- *F-1* – activate the function with the previous tare value,
- *F-2* – sample tare value from the pan,
- *F-3* – enter tare value with keys: *→0←*, ⊏→, *→T←* and *MENU*,

If the function is active, *NET* indicator is displayed.

Options *F-1* enables to activate the function with previous tare value after leaving the function with F-0 option.

Note:
Tare value is stored in memory also after unplugging the scale from the mains.

Weighing with constant tare:

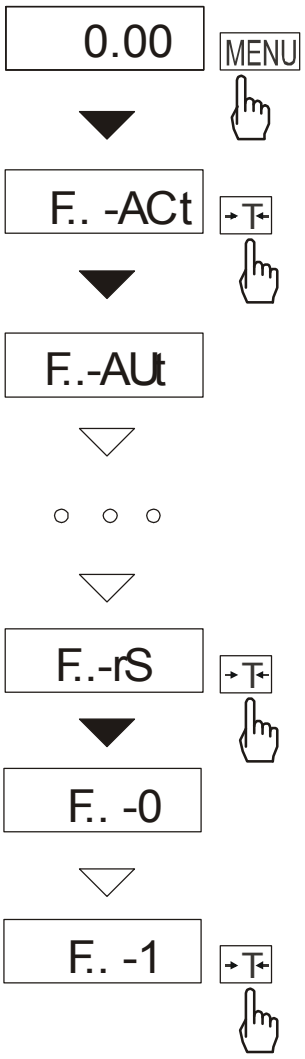


When *tAr* function is activated, press *→0←* key to zero the indication and to recall tare value from the memory. Tare value is displayed with ”-” sign.

B/G key enables for instant switching between net and gross weight.

Note:
When the pan is empty *→T←* key does not operate – to tare the scale use *→0←* key.

22. Function Menu customisation (F..-ACt)



This function enables to select special functions that will be displayed after pressing *MENU* key. Easy access to the most useful functions will shorten operation time and make work more comfortable.

Operation sequence shown on the picture, presents how to add RS232C parameters setting function (*F..-rS*) to the Function Menu.

To remove a function from the Function Menu choose *F..-0* in the last operation.

23. Maintenance and repairs of small defects

1. The scale should be kept clean.
2. Take care that no dirt gets between the platform and the scale base. If found any, remove the pan (lift it up), remove dirt and then replace the pan.
3. In case of improper operation caused by short-lasting power supply decay, unplug the scale from the mains and then plug it again after few seconds.
4. If the scale is switched on with empty pan and "Err-b" communicate appears, the load cell has been mechanically damaged.
5. It is forbidden to make any repairs by unauthorised persons.
6. To repair the scale, please contact our nearest service.

Error communicates:

Communicate	Possible cause	Remedy
C-1 ... 6 (over 1 min.)	selftests failed	if displayed more than 1 minute, contact an authorised service
Err-b	the scale was switched on with loaded pan	remove a load from the pan
	mechanical damage of the load cell	contact an authorised service
L	pan missing	put the pan on
	mechanical damage	contact an authorised service
H	overloading	remove the load from the pan
	mechanical damage	contact an authorised service
◣◢ indicator does not appear	unstable ground vibrations air flows	place the scale on a stable ground not affected by mechanical vibrations and airflows
	scale is damaged	contact an authorised service
- - - - - -	taring in progress	as above
- -	taring could not be finished (the load is too small or B\G key was used)	zero the scale or press B\G key again
- -	the load is too big to be zeroed	tare the scale (→T←)

Declaration of Conformity

We:

AXIS Spółka z o.o. 80-125 Gdańsk, ul. Kartuska 375B

confirm with all responsibility that scales:

B15W, B30, B60, B120, B150, B200 i B300

oraz B33, B63, B151, B152, B301

marked with CE mark comply with the following:

1. EN 61010-1 standard Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements harmonized with the directive 73/23/EEC (Low Voltage Directive).
2. EN 55022:2000 standard Limits and methods of measurement of radio disturbance characteristics of information technology equipment and IEC 61000-4-3 Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test, harmonised with the Council Directive 89/336/EEC.

Additionally scales with the following markings on the name plate:

- a sticker with two-digit number of the year in which the mark was affixed and the number of the Notified Body responsible for EC verification
- a green metrology sticker with "M" mark,
- a protective seal affixed by the Notified Body

CE XX 1443 M

comply with requirements stipulated on the EC Type-Approval Certificate No. PL 04 022 and was verified by Notified Body No. 1440 to comply with:

3. EN 45501 Metrological aspects of non-automatic weighing instruments harmonised with the Council Directive 90/384/EEC amended with 93/68/EEC.

Additional information
- Conformity evaluation for the Council Directive 73/23/EEC and 89/336/EEC were carried out by Laboratorium Badawcze Oddziału Instytutu Elektrotechniki in Gdańsk, accredited by PCA
- EC Type-Approval Certificate No. PL 04 022 was issued by Główny Urząd Miar in Warsaw (Notified Body no. 1440).

Gdańsk, 5.09.2006 r.

Per pro Director of AXIS Sp. z o.o.:

Production Manager Jan Kończak

Signature